

**REMARKS**

Claims 1 and 3-56 are pending in this application. By this Amendment, claims 1, 3-6, 13 and 35 are amended and claim 2 is canceled. Claim 1 is amended to include the features of claim 2 therein, claims 3 and 4 are amended to correct dependency, and claims 1, 5 and 6 are amended to more fully define the cross-linked structure with respect to the teachings of Lavin. Claim 13 is amended in response to the rejection under 35 U.S.C. §112, second paragraph. No new matter is added.

Reconsideration of the application is respectfully requested.

**Restriction Requirement**

A telephone requirement for restriction was made in connection with the above-identified patent application on May 15, 2007. Applicants affirm the election of Group I, claims 1-19. Accordingly, claims 20-56 are withdrawn from consideration. Applicants respectfully traverse the Restriction Requirement.

It is respectfully submitted that the subject matter of all claims 1-56 is sufficiently related that a thorough search for the subject matter of any one Group of claims would encompass a search for the subject matter of the remaining claims. Thus, it is respectfully submitted that the search and examination of the entire application could be made without serious burden. *See* MPEP §803 ("if the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions" (emphasis added)). It is respectfully submitted that this policy should apply in the present application in order to avoid unnecessary delay and expense to Applicants and duplicative examination by the Patent Office.

Applicants further respectfully submit that, because claims 1-19 are in condition for allowance for the reasons set forth below, claims 20-56 should be rejoined and considered on

the merits at this time. Thus, withdrawal of the Restriction Requirement and rejoinder of claims 20-56 are respectfully requested.

**Rejections Under 35 U.S.C. §112, Second Paragraph**

Claims 1-19 were rejected under 35 U.S.C. §112, second paragraph as allegedly being indefinite.

**Claim 1**

The Patent Office alleged that claim 1 is unclear as to what a "carrier" is and how a "carrier" imparts structural limitations to the claim.

One of ordinary skill in the art will understand that a "carrier," as described in the original specification at, for example page 7, lines 3-6, is a "(hole, electron) to be transported in the transporting layer."

Further, the term "carrier" provides a limitation to the transporting layer by further defining a property characteristic of the layer, i.e., the property of transporting the carrier.

**Claim 13**

The Patent Office alleged that claim 13 is indefinite for reciting functional groups that contain functional groups.

Claim 13 is amended to overcome the rejection.

**Claims 17-19**

The Patent Office alleged that "transporting layer" in claims 17-19 is unclear. Applicants respectfully disagree.

Claim 1, from which each of claims 17-19 depends, makes clear that the transporting layer is a carbon nanotube structure formed into a network structure by a plurality of carbon nanotubes and cross-linked sites, wherein the cross-linked sites connect the carbon nanotubes by chemical bonding between the different carbon nanotubes. The transporting layer transports the carrier, as discussed above.

With respect to claim 17, the Patent Office alleged that "conforming to a formation area of the transport layer" is unclear. Applicants respectfully disagree.

Claims 17 is clear, and the Patent Office does not appear to question the clarity of the claim. The Patent Office appears to question whether the claim is described and enabled in the specification under 35 U.S.C. §112, first paragraph.

However, this embodiment is described at least at page 15, lines 15-19 of the specification. Applicants submit that claim 17 complies with 35 U.S.C. §112, first and second paragraphs.

With respect to claim 18, the Patent Office alleged that it is not clear how the electrode layer and the transporting layer are distinct from one another. Applicants respectfully disagree.

A flexible substrate on which the electrode and the transporting layer are formed, as recited in claim 18, makes clear that both the electrode and the transporting layer are each formed on the flexible substrate. One of ordinary skill in the art will understand that the electrode and the transporting layer are distinct from one another. Further, Figure 1 illustrates an exemplary embodiment of such a structure showing the electrode layer and the transporting layer side by side on the flexible substrate. The language of claim 18 is clear and understandable in this regard.

#### Conclusion

For at least the foregoing reasons, claims 1-19 comply with 35 U.S.C. §112, second paragraph. Thus, withdrawal of the rejection under 35 U.S.C. §112, second paragraph is respectfully requested.

**Rejection Under 35 U.S.C. §103(a)**

Claims 1-19 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,574,130 ("Segal") in view of U.S. Patent No. 6,426,134 ("Lavin").

Applicants respectfully traverse this rejection.

None of the applied references, alone or in combination, teach or suggest an electronic device, including three or more electrodes, and a transporting layer constituted by a carbon nanotube structure formed into a network structure by a plurality of carbon nanotubes and cross-linked sites, wherein the cross-linked sites connect the carbon nanotubes by chemical bonding between the different carbon nanotubes, and in which a carrier is transported in accordance with a voltage applied to the electrodes, wherein the electrodes include at least a source electrode, a drain electrode, and a gate electrode to constitute a field effect transistor structure, as recited in claim 1.

The Patent Office concedes that Segal fails to teach or suggest cross-linking nanotubes and relies on Lavin as allegedly disclosing this feature. The Patent Office alleged that Lavin discloses a carbon nanotube having at least one end chemically bonded to a polymer, with the nanotube and polymer being cross-linked. However, even if it is accepted that the polymer and nanotube described in Lavin are cross-linked, this teaching still falls short from what is claimed. Claim 1 requires cross-linking between nanotubes, instead of cross-linking between a single nanotube and a polymer. Nowhere does Lavin teach or suggest a nanotube structure in which the nanotubes are cross-linked with each other.

In fact, Lavin merely discloses the composition and method of making a nanotube, not nanotubes forming a transporting layer or the cross-linking of such nanotubes. As such, Lavin fails to teach or suggest nanotubes cross-linked with other nanotubes and/or the advantages achieved from such structure.

Further, the Patent Office concedes that the applied references fail to teach or suggest wherein electrodes include at least a source electrode, a drain electrode, and a gate electrode to constitute a field effect transistor structure. However, the Patent Office alleges that the electrical configuration of claim 1 is well known in the art and would have been obvious uses and/or configurations for any material known to be useful as an electrode. Applicants respectfully disagree.

The moving switch of Segal is merely a structure for selecting between conduction and interruption. The structure of its electrodes does not have any feature or indication allowing one to assume that the switch has a field effect transistor structure. Accordingly, the field effect transistor structure of claim 1 is neither taught nor suggest by Segal. In addition, nowhere is the field effect transistor structure taught or suggested by Lavin.

Further, the configuration of the three electrodes, the source electrode, the drain electrode and the gate electrode, would not have been obvious as such achieves the advantageous result of allowing a current to flow with the result that a controlling effect on a current is exerted (see specification, page 35, lines 6-11).

For at least the foregoing reasons, claim 1, and dependent claims thereof, are patentable over the applied references. Thus, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

### **Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1 and 3-56 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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